



ENVIRONMENTAL *News*



EFA Northeast,

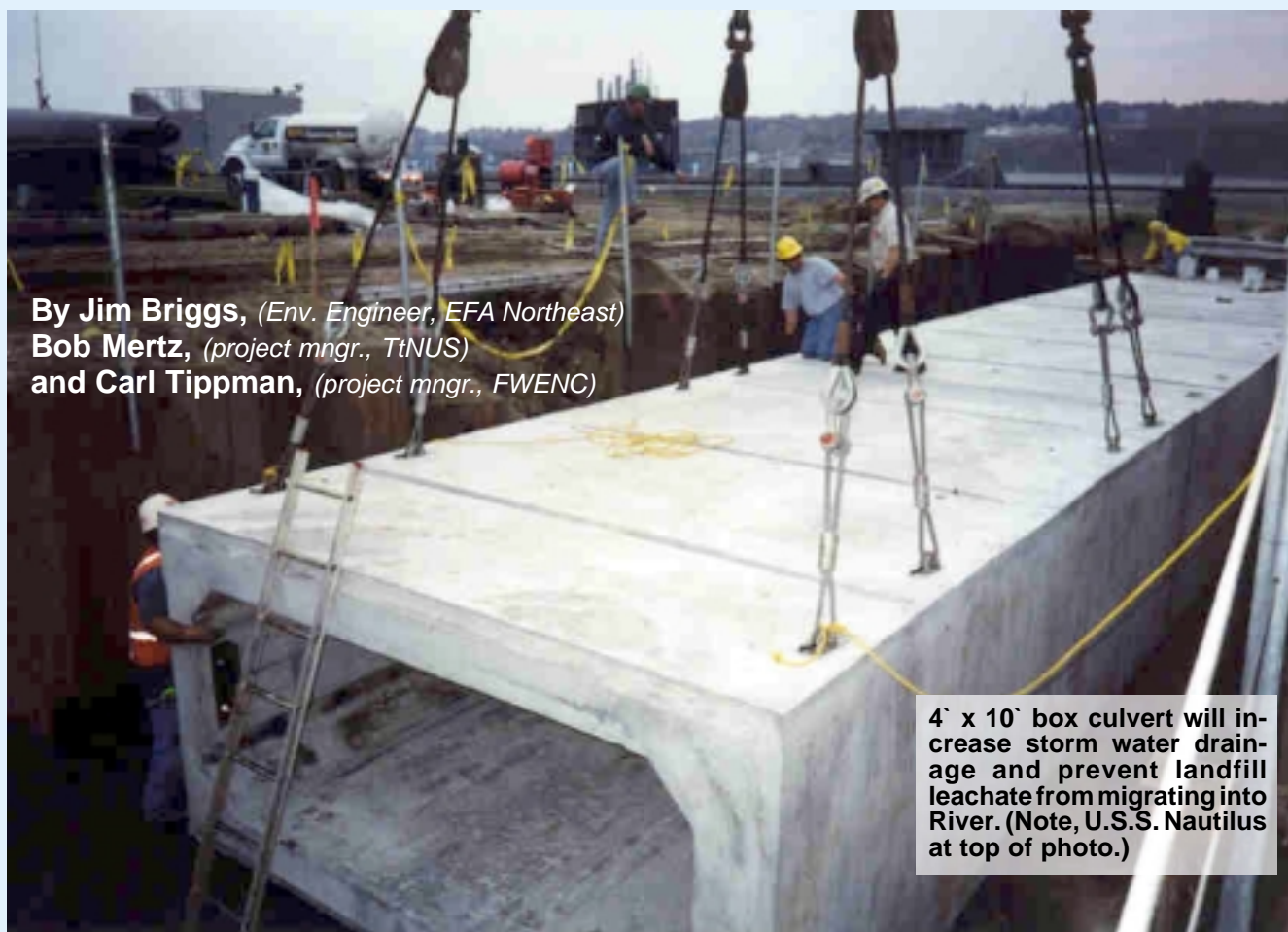
Naval Facilities Engineering Command

Fall 2001

Goss Cove Landfill Capped

Adjacent Sub Museum Remains Open During Construction

By **Jim Briggs**, (Env. Engineer, EFA Northeast)
Bob Mertz, (project mngr., TtNUS)
and **Carl Tippman**, (project mngr., FWENC)



4' x 10' box culvert will increase storm water drainage and prevent landfill leachate from migrating into River. (Note, U.S.S. Nautilus at top of photo.)

The former Goss Cove Landfill, 5 miles up the Thames River - north of Long Island Sound, is located at the southwestern corner of the Naval Submarine Base New London in Groton, CT adjacent to the U.S.S. Nautilus Submarine Monument and Submarine Force Museum. The Museum is operated by the Navy and is open to the public. The 3.5 acre landfill provides parking for the Museum. The landfill is enclosed by the Museum to the south, the Providence and Worcester railroad to the west, and sizable rock outcrops to the north and east. The Providence and Worcester railroad is constructed on a rock embankment parallel and immediately adjacent to the Thames River.

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From the Department Head's Desk

By Conrad Mayer, P.E.
Head, Environmental Department

We recently hosted the Fall meeting of the NAVFAC Environmental Program Managers here in historic Philadelphia. Although the events of 9-11 caused us to consider canceling the meeting, we rightfully decided to follow the President's guidance and conduct business as normal.

The senior environmental managers from CINCLANTFLT and CMC participated. As has become the norm, discussion of operational issues was the dominant theme. The Tactical Training Theater Assessment and Planning (TAP) process was reviewed; particularly how to fund the effort. (The TAP process is a coordinated effort among Operations, Environmental, Legal, Planning and Facilities to preserve the Navy's ability to "train as we fight"). You'll be hearing a lot more about TAP in the future.

Also meeting at the same time and place was NAVFAC's Compliance Management Team (EFANE's Rod Warner & his counterparts). Their focus continues to be nourishing the network of Media Field Teams so as to maximize our ability to support client activities.

The third meeting of note this Fall was the regional meeting of Environmental Directors hosted by Bob Jones, the Environmental PM for CNRNE. Rod Warner, Bob Ostermueller, Curt Frye and myself participated in the afternoon discussion of mutual interest items. The highlight of this meeting was the retirement luncheon for Bill Mansfield, Environmental Engineer Emeritus! Bill's many friends, includ-

ing those here in the city of brotherly love, wish him well – he'll be missed.

All in all, a busy start to FY02, with the meetings serving to set the agenda for a productive and successful year.



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The EFA Northeast Environmental Department does not endorse companies or products mentioned. Our primary target audience consists of Navy people at activities in our area of responsibility (the northeastern states) who are involved in environmental programs. The views and opinions expressed in this publication are not necessarily those of the Department of the Navy. We invite your contributions, comments and questions. To hold down costs, *Environmental News* is printed in black and white. Visit our website if you prefer to view or print a full-color version.

CAPT Joseph W. Zorica, CEC,USN
Commanding Officer

Conrad Mayer
Head, Environmental Department

Harvey Shultz
Executive Editor

Greg Procopio
Editor
Layout/Graphics



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Recyclable Paper

Pressure Treated Wood and Playground Equipment

By Jeff Davis, BCE

Pest Management Professional/Biological Sciences Branch

There has been a stir lately about potential risk to kids from pressure treated wood in child play areas. Some environmental groups want to ban the green-colored lumber. There is no doubt that pressure treatment greatly extends the service life of lumber. However, there are potential problems if the preservatives leach out of the wood.

Per the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), CCA (chromated copper arsenate) is a pesticide. The copper in CCA gives wood that green hue and effectively controls fungus (rot). The chromium "fixes" the other two chemicals in the wood so that they do not leach out. The arsenic is the chemical that controls termites and other arthropods and is the centerpiece of the controversy. Arsenic has been determined to be a human carcinogen by the World Health Organization, the Department of Health and Human Services, and the EPA. Risk levels have been established for both water (50ppb) and air (10ug/m³). The European Union may ban all consumer uses of arsenic as a wood preservative.



Is CCA-treated playground equipment a risk to kids? The EPA is currently reassessing CCA as part of its ongoing reregistration program for older pesticides. The EPA has developed a draft sampling and analysis protocol for CCA pressure-treated playground equipment (dislodgeable residues protocol) and soil residues of arsenic, chromium and copper in soils beneath/adjacent to CCA-treated playground equipment.

So, how much arsenic is in a piece of pressure treated lumber? The American Wood Preservers Association (AWPA) specification C1 states that preservative retention for average deck lumber should be between 0.25 pcf (pounds/cubic foot) to 0.60 pcf. Calculations reveal that an 8' long x 2" x 4" (actually 8' x 1 3/4" x 2 1/2" for all you engineers out there) = 0.338ft. Which translates (using the lower value 0.25 pcf) to 0.0845 lbs. (1.35 ounces) of CCA. Using a 1:1:1 ratio of C:C:A (according to the patent, the ratio of copper to arsenic is equal with a small quantity of chromium added for binding) translates to 0.45 ounces (12,757 mg) of arsenic in 1 piece of CCA-treated wood. "Arsenic is poisonous in doses significantly larger than 65 mg (1 grain), and the poisoning can arise from a single large dose or from repeated small doses, as, for example, inhalation of arsenical gases or dust." All this translates to: 1 stick of CCA-treated lumber contains a least 196 times the amount of arsenic (65 mg) currently considered threshold dangerous. Now think about how much lumber is in a playground set.

Does arsenic leach out of pressure treated lumber? Manufacturers claim that CCA-treated wood is safe. However, the EPA, as noted above is going to test for leaching. Dr. David Stilwell, Department of Analytical Chemistry, the Connecticut Agricultural Experiment Station, presents findings that it does leach and is available on the surface of the wood. The State of Connecticut Fact Sheet on "Pesticides Used in Pressure-Treated Wood" states: "Studies performed ... in California and Maine, and by the U.S. (Consumer Product Safety Commission) and the Canadian governments show that arsenic is readily available on the surface of CCA-treated boards".

So what should we do about CCA-treated playground equipment on Navy and Marine Corps installations to reduce risk to kids? Dr. Stilwell determined that CCA (leached or surface) is reduced by 80–97% after painting/sealing. And that makes sense: Seal it in. It would seem prudent then for Navy and Marine Corps Child Care Centers and Schools that have in-place or plan to construct playground equipment using CCA treated lumber, to seal it annually with a top quality polyurethane, acrylic, or oil based product.

TANKS FOR THE MEMORIES

Fuel Oil Reduced at Lakehurst

By Dorothy Peterson

Environmental Engineer, NAEC Lakehurst, NJ



On September 7, 2001, the demolition phase of the natural gas heat conversion project at Naval Air Station Lakehurst was completed. Three aboveground fuel tanks associated with the former Steam Plant #1 were cleaned, cut open and dismantled. Removal of these fuel tanks marks the end of an era. No longer is the Station dependent on oil as its primary heating source. Two of the tanks held 150,000 gallons each and the third held 250,000 gallons. The tank removal decreases fuel storage by 64%. To the Environmental Department, this was a significant and profound event.

The environmental costs associated with owning and operating a set of large petroleum-fired boilers are sometimes hidden, but no less important or costly. Expenses include: past spill remediation, spill response, fuel secondary-containment inspections, discharge prevention planning, air permitting, and air monitoring/reporting.

Due to the Station's sandy soils, high water table and abundance of streams and wetlands, the threat of fuel spills to the aquifer and general environment is significant.

In 1987 the Station was listed on the National

Priority List (NPL) with 45 contaminated sites, most due to past practices and spills associated with jet, automotive or heating fuel. Cleanup costs of has reached the tens of millions of dollars and some of the remaining eleven sites will not be completed for another twenty to thirty years.

Steam Plant #1 is adjacent to NPL site #42, where the station has spent hundreds of thousands of dollars to remove fuel from the groundwater table.

Routine fuel deliveries can be a source of frequent and costly spills. For example, a 50-gallon fuel oil spill cleanup can cost over \$3000 in labor, material and waste disposal. The cost



could be much greater if the fuel enters a stream or other ecologically sensitive area. The spill consequences at Steam Plant #1 could have been extraordinarily great, given that its tanks holding 550,000 gallons of number 6 fuel oil were located less than 150 feet from wetlands and the Ridgeway Branch, a tributary of the Toms River.

Tank removal further precludes the need to have a Facility Response Plan mandated by the Oil Pollution Act of 1990. The worst-case discharge decreased from 250,000 gallons to 190,000 gallons, a twenty five percent drop.

Tank secondary containment inspection is another hidden cost. Containments are required by law to protect the environment against leaks, spills or total tank

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TANKS

(Continued from page 4)

failure. Containments need to be inspected weekly and rainwater must be drained after each rain event. Records of these inspections must be maintained for ten years.

Any major facility that stores over 200,000 gallons of hazardous substances requires spill prevention planning. The Station writes and updates its Discharge Prevention, Containment and Countermeasures (DPCC) plan and submits it to the New Jersey Department of Environmental Protection (NJDEP) in accordance with state regulations. Any time a fuel tank is altered, removed or added, the DPCC plan must be updated and resubmitted to the NJDEP.

The air discharges associated with burning number 2 and 6 fuel oil are significant. The Station is in a severe non-attainment area for ozone. Ozone is principally formed from nitrogen oxides (NOx) and volatile organic compounds (VOCs) through chemical reactions in the atmosphere. By converting to natural gas heat, the Station will realize the following reductions in air emissions: 43% NOx, 50% carbon monoxide, 70% sulfur oxides, and 80% total suspended particulate matter. The former power plant required routine calibration of opacity meters and yearly boiler tune-ups to comply with its air permits. The removal of major air pollution sources significantly reduces the Station's requirements for air permit renewal, air monitoring, reporting and record-keeping. Air "credits" have been earned which the Station can use to expand its mission.

The federal government has long realized the need to reduce dependence on petroleum products. In March 1994, President Clinton issued Executive Order (EO) 12902 which requires all agencies to "implement programs to reduce the use of petroleum in their buildings and facilities by switching to a less polluting and non-petroleum based energy source, such as natural gas or solar and other renewable energy sources". In June 1999, EO 13123, "Greening the Government through Efficient Energy Management", reiterated the goal of reducing use of petroleum within federal facilities. Accordingly, the Station is committed to reducing usage of fuel oil in favor of natural gas or other environmentally-friendly energy sources whenever practicable.

The persons responsible for the successful completion of this project are:

Bernard Zuba - PW Engineering project manager

Larry Lemig - Environmental Department

Eric Miller - Environmental Department

Francesca Buzzetta - ROICC contracting officer

Lt. Damon Dequenne - ROICC project manager

MANSFIELD RETIRES

Bill Mansfield, an icon of the Navy's environmental business in the northeast, retired on December 1, 2001. Many of his peers from various activities and from EFANE were on hand for a luncheon and meeting on November 1 to mark the occasion and to wish him well.

Bill began his career at EPA Region II, New York more than 30 years ago. Soon thereafter he went to the Naval Submarine Base, New London CT and later to the Naval Education and Training Center (NETC) Newport RI as their Environmental Director. In 1996, EFA Northeast was fortunate enough to pick up Bill as our BRAC environmental coordinator for the closure of Naval Undersea Warfare Center (NUWC) New London. There he continuously took on additional duties as the staff size diminished.

In his last position he also served as EFA Northeast's forward deployed Environmental Liaison Officer with the Commander Navy Region Northeast (CNRNE). Bill was always as collegial and affable as he was professional and effective. We will all miss working with Bill, and wish him a long, happy and healthy retirement.



Bill Mansfield (right) receives a plaque honoring his retirement from Rod Warner, Director, Environmental Engineering Division, EFA Northeast.

Are Two Contractors Better Than One?

By Orlando J. Monaco, P.E.

RPM, Installation Restoration Division

EFA Northeast has come a long way in how we use contractors to help us investigate and address environmental issues at our client facilities. Just as environmental cleanup technologies have improved and expanded, so too have our choices in contract vehicles. In the “good old days”, back in the mid-late-1980s, the only type of contract vehicles available to us were Firm Fixed-Price (FFP). As the name implies, we contracted a set amount of dollars based on a scope of work negotiated for the full range of tasks within the CERCLA program - anything from the PA/SI to the ROD. Actual fieldwork was separated from the work plan, since there was no way to know what to expect of the lateral and vertical extent of contamination.

But once we had a work plan that all parties agreed to, could anyone know that 10 sampling points taken at a 5-foot depth and spaced at 25-foot intervals would adequately characterize the site? Sampling decisions, of course, were based on aerial photos, interviews with base personnel, and a field trip, but still some of the puzzle pieces could

be missing or, only indigenous to part of the site. So what could be done when the budget didn't cover the needed samples?

Contract purity required work to stop while more samples were negotiated for. Scheduling delays stretched into months or years, depending on funding, weather considerations, issues with regulators, etc. Going through the CERCLA process at even a small base required a number of years, outlasting the FFPs.

Groundwater issues were even more involved, since contaminant migration in water is not limited to surface boundaries. Investigations that led offsite were particularly challenging and required creative problem solving. Technical considerations sometimes gave way to political or community pressures. We learned that FFP contracts really didn't accommodate the uncertainty of many environmental situations. We needed something...well...cleaner.

Enter the Comprehensive Long-Term Environmental Action Navy (CLEAN) contract vehicle of the early 1990s. Here was a cost plus mechanism that was designed specifically for our needs in terms of flexibility, long life and a high dollar ceiling. While not perfect, this vehicle greatly improved the stops and starts inherent in FFP by allowing us to negotiate for what we reasonably expected to do, and only pay for what the contractor actually did. Even so, we often needed to increase the scope of work for numerous reasons. But, if done early enough, work stoppages did not result. So, for the past 10 years, we've used CLEAN contracts to remediate our facilities.

(Continued on next page)



100 DAYS LATER

The Environmental Department and all of the EFA Northeast mourns the loss of those Americans who were victims of the tragic events of September 11. Our thoughts and prayers are with all of America and every nation as we fight to rid the world of terrorism.



Two Contractors

(Continued from previous page)

As many of our sites approached remediation, the Navy went to Remedial Action Contracts (RAC). The purpose was to provide the same degree of flexibility at post-ROD activities as we had in pre-ROD. Finally, as some of our sites move into post-remediation phase, we reverted to smaller, FFP-type contracts to handle the more routine, predictable work of long term operation (LTO). We've come full circle on the different types of contracts, with all of them still available for use.

But can we have too much of a good thing? It may seem that, "if one contract is good, two will be better" but, as with most things, reality can get in the way of concept. What if we bring in a RAC to construct/modify a treatment plan, and have a CLEAN contractor responsible for its operation? Or, what if have one CLEAN contractor takes over performance monitoring from another CLEAN contractor as a way of spreading the work? Or what if an FFP becomes involved in developing a work plan that a CLEAN contractor writes and executes? The answer is you may get more than you negotiated for.

You must establish clear boundaries. Explain in no uncertain terms to the present contractor that the work going to the other contractor is not the result

of lack of performance on their part, but simply a way of spreading the work, as clearly mandated by federal acquisition regulators. Handing over a treatment plant for operation by one contractor after another has constructed/modified is a setup for failure and finger pointing if responsibility is not clearly defined. Do so up front and you'll save all concerned a lot of grief.

Obviously, there will be times when combining contractors just will not work, at least not without much pain and expense for the Navy. Always reconsider what you're proposing, and try to see it from the contractors' points of view. There's nothing worse than disputes among Navy players, especially in front of the regulators.

Finally, never put one contractor in a real or perceived position of superiority to the other. The best way to avoid this is to pass data from one contractor to the other through the Navy. This may be as simple as a transfer of historical information, or as touchy as review comments. We can, and should, weed out subjective, non-constructive comments, remarks, or observations when they show up. Most contractors are professionals, and understand the need to work with other contractors for the common good of the Navy. It's our job to keep the real and perceived playing field level and objective, and focused on the objective.

Environmental Reality Check

By Greg Procopio

Editor, Environmental News

A cleaner environment! That certainly has been the focus of much attention over the past two decades. In fact, billions of dollars have been spent by both the military and the private sector to clean up our past sins and to insure a cleaner future for posterity. The environment is big business, spawning a huge industry.

But, is the environment cleaner? Yes it is, says Pat Tigges a U.S. nutritionist from Washington State. "Our environment has been getting better for more than 50 years".



"Organic wastes have been reduced by 46 per cent, toxic organics by 99 per cent and toxic metals by 98 per cent over the last 30 years. More streams, rivers and lakes are fit for swimming today".

"Data shows reductions in the levels of fecal coliforms and phosphates in our waters, no net loss of Canadian wetlands since 1986 and U.S. forest growth rates exceed harvest by 37 per cent and there has been more annual growth than harvest for the last 46 years".

But what about pesticides?

Despite the most intense use of pesticides over the past 50 years across North America, "the risk from pesticides to consumers is effectively zero". Child cancer rates have declined by 60 per cent since 1950 and the

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Environmental Reality Check

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higher yield of agriculture that pesticides afford us has translated into a 20 per cent increase in wooded acreage.

How does that happen? Well, think about it, because of pesticides, farmers have been able to triple food production. Had they not done that, about 6.4 billion more acres would be required to produce today's food supplies, 23 million square miles of farms as opposed to 5.8 million that we're getting by with today. This is land that has been saved for rainforest, wetlands and endangered species.

But aren't we losing species? Tigges says "the grizzly bear population in the U.S. is the same now as in 1982, there are seven times as many moose as in 1960, 12 times as many elk as in 1970, 27 times as many whitetail deer as in 1923 and 37 times as many antelope as in 1923".

So what is the Navy doing? According to Rear Admiral Michael R. Johnson, CEC, USN, Commander, Naval Facilities Engineering Command, "the Navy Environmental Restoration Program is on target to achieve cleanup of more than 50 percent of high relative risk sites by next year".

"The restoration program continues to focus on relative risk-based innovation and technology. The large presence of dense non-aqueous phase liquids (DNAPL) at many of our sites has driven us to participate in an endeavor to accelerate the development and use of innovative DNAPL remediation technologies. This involves a collaborative effort among federal agencies, private sector vendors and responsible parties in research and development, technology demonstrations and full-scale deployment".

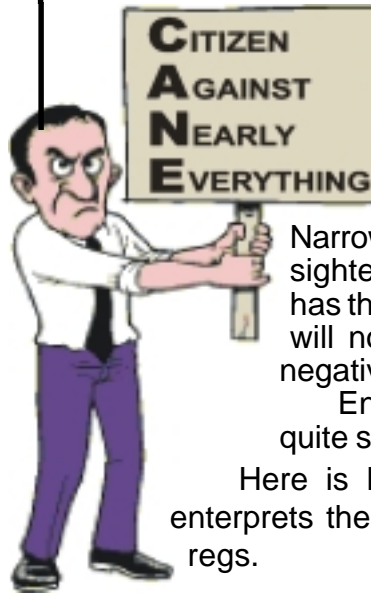
(Editor's note: The material above was extracted from *Agnnet*, 14 Nov. 00 and *The Military Engineer*, No. 612.)

STICKER SHOCK OF THE MONTH

Boston's grossly over-budget Central Artery/Tunnel project, the "Big Dig", is the most heavily environmentally permitted construction project ever. Before it's over, several years behind schedule, approximately 1,500 permit conditions will have been satisfied with mitigation costs alone costing about \$3 billion!

Environmental Law Simplified

By Citizen Cane



Have you seen Citizen Cane at a recent public meeting?

Narrow-minded and near-sighted, this guy always has the most to say and it will no doubt be on the negative side.

Environmental law is quite simple to him.

Here is how Citizen Cane interprets the meaning of these regs.

- NEPA** – You must tell what you're going to do before you do it, so I can stop you from doing it.
- OSHA** – You must tell how you're going to do it safely so I can request a safety net even if you are constructing a shed.
- CAA** – You can't put anything up the smoke stack.
- CWA** – You can't put anything down the drain.
- SWDA** – You can't bury anything in the ground.
- CERCLA** – If you already buried it, dig it up.
- RCRA** – You can't put it anywhere else.
- FFCA** – You can't transport it on a public highway.
- HMTA** – You can't even carry it around.
- TSCA** – If it's so bad, don't make more of it.
- SARA** – Now tell everyone what you're doing so they can take you to court.

Editor's Note: Citizen Cane doesn't worry EFA Northeast since we cheerfully comply with all applicable Federal, State, and local environmental laws.

EFA NORTHEAST'S CURRENT ENVIRONMENTAL CONTRACTS			
PRIMARY SERVICE PROVIDED	TYPE, NUMBER & ANNUAL CAP	FIRM NAME & ADDRESS	EFA NE CONTACT & PHONE #
All types of hazardous waste studies and project designs.	IDQ N62472-97-D-1440 \$1M	Malcolm Pirnie 104 Corporate Park Dr. White Plains, NY 10602	George Wiese 610-595-0567 X128
All types of water and wastewater related studies & designs	IDQ N62472-98-D-1441 \$1M	Woodard and Curran 41 Hutchins Dr. Portland, ME 04102	Tom Sheckels 610-595-0567 X168
All types of air pollution related studies & designs.	IDQ N62472-98-D-1449 \$1M	Parsons Engineering Science 30 Dan Rd. Canton, MA 02021	Joe Roche 610- 595-0567 X112
All types of asbestos lead based paint and radon studies & designs.	IDQ N62472-01-D-1440 N62472-01-D-1441 \$3M each	Baker Environmental Inc. 420 Rouser Rd. Coraopolis, PA 15108 Dewberry & Davis LLC 8401 Arlington Blvd. Fairfax, VA 22031	Joe Roche 610-595-0567 X112
Restoration studies and designs.	CLEAN III N62767-94-D-0888 \$250M over 10 yrs.	Tetra Tech NUS 600 Clarke Ave., Suite 3, King of Prussia, PA 19406	Roger Boucher 610-595-0567 X178
Restoration studies and designs at BRAC Bases.	CLEAN II N62742-92-D-1296 \$100M over 10 yrs.	EA Engineering, Science & Technology, 11019 McCormick Road, Hunt Valley, MD 21031	George Hicks 610-595-0567 X180
Action contract for construction removal and site remediation.	RAC III \$125M over 5 years	Foster Wheeler Environmental Corp., One Oxford Valley, Suite 200, Langhorne, PA 19047	Christi Davis 610-595-0726
Environmental remediation and compliance projects.	8A EMAC N62472-99-D-0824 \$15M aggregate over 5 years	Cape Environmental Mgmt., Inc., 486 Thomas Jones Way, Suite 260, Exton, PA 19341	Michele Donnelly 610-595-0630
Environmental remediation and compliance projects.	8A EMAC N62472-99-D-0825 \$15M aggregate over 5 years	USA Environmental Mgmt., Inc. 8600 West Chester Pike, Suite 103, Upper Darby, PA 19028	Michele Donnelly 610-595-0630
Environmental remediation and compliance projects.	8A EMAC N62472-99-D-0826 \$15M aggregate over 5 years	Resource Mgmt. Concepts, Inc. 46970 Bradley Blvd. Suite B, Lexington Park, MD 20653	Michele Donnelly 610-595-0630
Environmental remediation and compliance projects.	8A EMAC N62472-99-D-0827 \$15M aggregate over 5 years	Environmental & Demolition Svs., Inc. 1415 Bush Street, Baltimore, MD 21230	Michele Donnelly 610-595-0630

[OVER]

EFA NORTHEAST'S CURRENT ENVIRONMENTAL CONTRACTS

PRIMARY SERVICE PROVIDED	TYPE, NUMBER & ANNUAL CAP	FIRM NAME & ADDRESS	EFA NE CONTACT & PHONE #
Environmental remediation and compliance projects.	SMALL BUSINESS EMAC N62472-01-D-0805 \$30M aggregate over 5 years	KC Industries Inc. 7971 Fernham Rd Forestville, MD 20747	Michele Donnelly 610-595-0630
Environmental remediation and compliance projects.	SMALL BUSINESS EMAC N62472-01-D-0806 \$30M aggregate over 5 years	Universe Technologies, Inc. 9 East Second St. Frederick, MD 21701	Michele Donnelly 610-595-0630
Environmental remediation and compliance projects.	SMALL BUSINESS EMAC N62472-01-D-0807 \$30M aggregate over 5 years	TN & Associates 124 S. Jeffereson St. Oak Ridge, TN 37830	Michele Donnelly 610-595-0630
Environmental remediation and compliance projects.	SMALL BUSINESS EMAC N62472-01-D-0808 \$30M aggregate over 5 years	Kemron Environmental Serv. 8150 Leesburg Pike-Suite Vienna, VA 22182	Michele Donnelly 610-595-0630
Environmental remediation and compliance projects.	SMALL BUSINESS EMAC N62472-01-D-0809 \$30M aggregate over 5 years	Oak Environmental Consultants 600 N. Route 73, Suite 12 Marlton, NJ 08060	Michele Donnelly 610-595-0630
Environmental Engineering to perform monitoring optimization studies, remedial system optimization studies, CERCLA studies and 5 year reviews, life cycle analysis of environmental clean-ups, remedial design, sampling and analysis.	IDQ N62472-00-D-1300 \$20M over 5 years	Battell Memorial Institute 505 King Ave. Columbus, OH 43201	George Shirley 610-595-0823

Environmental Folks *Flip* for Blood Drive Success

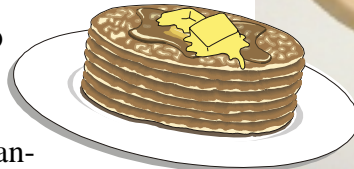
By Michele DiGeambeardino

Environmental Engineer

Wednesday, October 10th marked EFA Northeast's first Pancake Breakfast in support of the American Red Cross Blood Drive.

The event was a huge success as seventy-five people arrived to donate blood that day. Remarkably, thirteen of those donors were there for the first time. Many a little nervous or leery, they put their own personal anxieties aside to help humanity.

Hats off to all those who donated blood and/or volunteered to make the Pancake Breakfast a success. A special thanks goes to WARA chairman Bill McElevney for coordinating the event and to the Boy Scouts for loaning us the grill. Hopefully each and every future blood drive will be as heart felt as this one.



Among the many Environmental Department folks that volunteered their time are from left (seated), Michele DiGiambeardino; Judy Hayes, Tom Stephan and Dave Krouse. Not in photo are: Mark Leipert; Joe Ryner Jim Mills, Mary Hunt and Jason Speicher.



In very tight quarters, the Source Selection Team pictured above, celebrates the award of the EMAC contract. Seated left to right, Michelle Donnelly, Contract Specialist; Marge Finiello, Member TEB; Debra Felton, Chairperson TEB; Christi Davis, Member TEB; Lucie McDonald, Legal Advisor; Standing left to right, George Wiese, Member TEB; Jim Colter, Member TEB; Roger Boucher, Member TEB; George Shirley, Member SST; Robert G. Smith, Source Selection Authority and David Rule, Chairperson, SST. Not pictured, Tim Bramhall, Member SST and Vince Hill, Price Analyst.

EMAC Team Scores Big... \$30 Million Contract Awarded

By Michele Donnelly

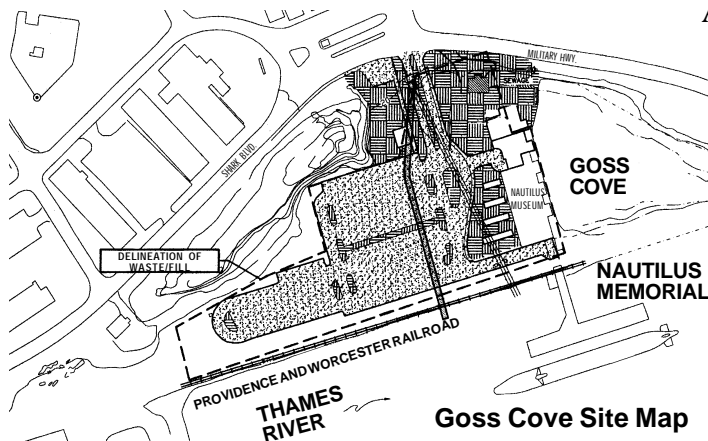
Environmental Contract Specialist

EFA Northeast awarded a Small Business Environmental Multiple Award Contract (SBEMAC) on 26 September 2001. The contract term is five years with an aggregate total of thirty million dollars. Awards were made to the following five contractors: KC Industries, Inc. of Forestville, MD; Universe Technologies, Inc. of Frederick, MD; TN & Associates, Inc. of Oakridge, TN; Kemron Environmental Services, Inc. of Vienna, VA and Oak Environmental Consultants, Inc. of Marlton, NJ. A seed project for Lead-Based Paint Abatement at the Stewart Terrace Housing Units, Fort Stewart, New York was awarded to KC Industries in the amount of \$563,152.00. The SBEMAC format is capable of supporting various remediation types of work such as Asbestos, LBP, Removal/Replacement of UST's, Demolition & Soil Removals. This is a fixed price contract in which task orders will be competitively bid amongst the five contractors.

Goss Cove Landfill Capped

(Continued from page 1)

Prior to the start of the project, the museum parking area was heavily landscaped and maintained in a park-like setting.



Goss Cove was formed, prior to 1934, when a railroad was constructed on the east bank of the Thames River. The Goss Cove Landfill was active from 1946 through 1957. The landfill, created, in what was then the northern portion of Goss Cove, was filled primarily with incinerator ash, cinders, metal, brick, glass, wood, and sand and gravel average to a 14 foot average depth. The landfilled material was placed over river sediment deposits overlying metamorphic bedrock. The Navy and the United States Environmental Protection Agency (USEPA), in concurrence with the State of Connecticut determined that installation of an engineered control cap, institutional controls, groundwater monitoring, and five-year reviews would be required to address the soil contamination at the landfill. The selected remedy, an engineered control cap, was designed to prevent human contact with contaminants in the landfill area, to serve as an infiltration barrier and to minimize the risk of long-term contaminant migration from the landfill.

Passing through the landfill, under the railroad embankment and discharging into the Thames River were 3 parallel undersized and deteriorated 42-



Box culvert (shown under railroad embankment) built to replace existing steel storm drains.

inch corrugated steel storm drains installed during the 1960's. These drains carried storm runoff from a substantial portion of the southern half of the Navy base. The deteriorated drainage piping needed to be replaced to provide increased capacity for storm water drainage and to eliminate it as a conduit for landfill leachate migration to the Thames River.

A rectangular box culvert, 4 feet high by 10 feet wide, was designed to convey the stormwater flow. An alignment located north of, and parallel to, the original storm drainage pipe was selected. Design evaluations for flow and structural loading were considered relatively minor when compared to environmental concerns. The environmental concerns were addressed by designing the box culvert to remain intact assuring insignificant settlement and differential settlement. This designed-in stability helps eliminate the preferential pathway along the box culvert bedding and backfill materials.

The settlement concerns were addressed by founding the box culvert on bedrock or deep foundations. Leakage into or out of the box culvert was controlled with gaskets between the precast box culvert sections. In addition, the joints between the box culvert sections were sealed with a non-shrink grout. To prevent the potential migration of groundwater along the gravel surrounding the box culvert, three anti-seep collars consisting of clay were installed around the perimeter. Since the designed pile supported box culvert needed to be installed through the landfill, the excavation material had to be placed under the landfill cap. Otherwise, landfill waste would have to be disposed of off-site at significant cost. Therefore, it was essential that the project construction be sequenced so waste material could be excavated and placed in the subgrade level prior to construction of the cap system.

The Record of Decision (ROD) for the Goss Cove Landfill, which documents the selected remedial alternatives for the site, was developed from the findings of the Feasibility Study (FS) and was signed by the Navy and the EPA in September 1999. A letter of concurrence for the ROD was signed by CTDEP in September 1999. Future use of the site would be as a parking lot for the U.S.S. Nautilus Submarine Monument, Submarine Force Library and Museum. Under the Federal Facility Agree

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SITTIN IN ON THE



By Greg Procopio

Editor, Environmental News

The annual RITS Seminar at EFA Northeast was held on October 16. The Remediation Innovative Technology Seminar (RITS) held at the Renaissance Hotel Philadelphia Airport, provided training on new and innovative technologies, methodologies, and guidance under the Navy's Environmental Restoration Program.

RITS is sponsored by the Naval Facilities Engineering Command (NAVFAC) in coordination with its geographical Engineering Field Divisions (EFDs) and Activities (EFAs), and its Naval Facilities Engineering Service Center (NFESC). The RITS training serves as one of many ways the Navy promotes innovative technologies to enable site restorations to take place faster, consume less energy, and provide better results at lower cost.

While the RITS is developed primarily for the Navy's Environmental Restoration and Base Realignment and Closure (BRAC) environmental professionals, it is also available to other DoD personnel, the Navy's environmental cleanup contractors, and environmental regulators.

Topics at this year's seminar included:



Five-Year Reviews – This session presented information on five-year review requirements, and recent Navy policy. Actual five-year review reports were analyzed. Five-year reviews are required at Navy and Marine Corps environmental restoration sites where remaining hazardous substances, pollutants or contaminants prevent unlimited land use and unrestricted exposure. Five-year reviews ensure remedies remain protective of human health and the environment. They can also be useful to evaluate remedial performance, identify remedy deficiencies, and recommend corrective actions.



Management of Secondary Treatment Trains –

This session presented innovative and cost effective methods for managing the secondary waste streams resulting from remediation systems. Presentations covered construction, operation and maintenance, disposal costs, and overall costs of secondary treatment systems such as air stripping, granular activated carbon adsorption, UV oxidation and bioreactors. The most effective treatment train for each system was identified.



Perchlorate – The historical use of perchlorate in rocket fuel and explosives was discussed as were the reasons why the chemical is a cause of concern today. Information about toxicology, analysis and treatment of perchlorate were also presented. The session concluded with a discussion about the roles of the Interagency Perchlorate Steering Committee, and the DoD perchlorate workgroup.



Knowledge Exchange / Source Removal Technologies –

Case studies of source removal technologies were reviewed. These included in-situ oxidation, groundwater circulation wells, and in situ bioremediation. Case studies provided examples of technologies applied incorrectly and addressed criteria for properly implementing source removal technologies.

The audience left the session with a better understanding of the value of a well-documented project, regardless of its outcome.

Environmental Factoids

~ Every year we throw away 24 million tons of leaves and grass. Leaves alone account for 75% of our solid waste in the Fall.

~ Every ton of recycled office paper saves 380 gallons of oil.

Goss Cove Landfill Capped

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ment the Government is required to start substantial and continuous work on the Remediation effort within fifteen months of the date of the ROD.

The major components of the ROD for the Goss Cove Landfill included:

- Installing an engineered control cap at the site;
- Establishing institutional controls by restricting future activities at the site;
- Conducting long-term monitoring of groundwater; and
- Conducting 5-year reviews of the landfill site in accordance with CERCLA and the NCP.

Since the landfill is the only parking area for the Nautilus Museum, a decision was made during the design to sequence work such that a portion of the parking lot would always remain open. A very detailed sequencing of work was developed that would allow the capping operation to be performed in five phases. As the design was being completed and the project entered the construction phase, FWENC pointed out that the land locked site and restricted site access would require several years to complete construction according to the sequence of work developed during the design. During a meeting between the Navy, Museum staff, TetraTech and FWENC, museum staffers informed the contractors that a vast majority of the museum patrons visited the museum during the peak summer months.

An alternative was subsequently developed. The cap would be constructed in one operation between September and May by closing the entire site, moving museum patron parking onto the Naval Submarine Base, providing a temporary pedestrian pathway and constructing a temporary pedestrian ramp for direct museum access. According to the Commanding Officer of the Museum "the pedestrian ramp was a good compromise to keep the museum open while continuing the project". The

project was divided into phases: culvert installation in the autumn, followed by a winter shutdown and landfill cap construction in the spring.

Despite capping the landfill in a single operation, the site proved to be very congested. Material deliveries had to be closely coordinated to minimize on-site storage. All construction equipment that was no longer required was immediately shipped off site.

Signage was installed on the roads leading to the museum to inform visitors that the museum was open and to direct them to the temporary parking site. Base security issued special gate passes to museum patrons at the main gate, allowing them to park in a designated area. To create a safe and accessible pathway from the parking area to the museum, signage was installed. Icons were painted on the walkway, a temporary crossing light was installed, a section of sidewalk was widened and protected with a concrete barrier and temporary wooden pedestrian/handicap ramp was installed leading to the museum side entrance. This allowed visitors safe and convenient access to the museum while keeping them away from the construction activities.



Temporary Pedestrian Walkway

TetraTech's final design consisted of a multi-layer, 3.5 acre cap with a geosynthetic gas management layer, a waste containment geomembrane, a geosynthetic drainage layer, a separation/filtration geotextile, and various surface layers designed for installation over the limit of waste/fill materials. The landfill cap design was constrained by site considerations. Since the end use would be parking, the surface slope needed to be moderate. In addition, the grade on the lower end of the landfill could not be raised due to the interface with the museum. To minimize excavation and the generation of fill material, a design was selected using synthetic materials in the gas management and drainage layers so the overall cap thickness was two feet in paved areas and two feet, six inches in grassed areas. While the cap increased the finished surface elevation of paved surfaces and the grassy islands in the parking area; the original grade in front of the museum was maintained by over-excavating the area to allow for the cap thickness. The design also included a new 424 foot long 4 feet by 10 feet concrete storm sewer box culvert to

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replace the three 42-inch diameter corrugated metal pipes.

Due to the tight timeline, numerous aspects of the design occurred simultaneously. On the heels of finalizing the ROD, TtNUS was already using an advanced site design software program (TERRAMODEL®) to create a three-dimensional database of the site. Lithologic information for over 75 geotechnical borings, eight utilities, structures, surface features, and ground surface topography were entered in the software.

The information was used to facilitate design of the engineered control cap design, aid in settlement and slope stability evaluations, provide quantity estimates, and generate cross-sections and profiles.

Early in the design phase, FWENC was brought in to provide constructability input and to gain an understanding of the design rationale. This allowed the Work Plan development to begin when the design was only 60% complete. The box culvert was identified as a long lead time procurement. Therefore, the Navy funded this procurement in advance of the remainder of the project based on a conceptual design. As soon as the ink was dry on the culvert design, FWENC was able to finalize the procurement and start into fabrication. The Navy and FWENC finalized the construction budget as TtNUS was completing the design. Post construction-landscaping details were developed between the Navy and the museum, as construction activities started in late August/early September of 2000.

According to the SUBASE "Again and again EFA Northeast did a timely and effective job of coordinating competing and sometimes conflicting interests to keep the work on track and facilitate "just-in-time" decisions so design and field construction didn't bog down. All in all, this project went much better than expected. The frequent coordination meetings and early attention to potential PR issues/planning to meet public concerns averted any PR/Community relations problems during the project."

The Navy had to obtain an easement from the railroad to install the box culvert outfall through the railroad embankment to the Thames River. Since this was an active rail line, installation of the box culvert open cut required a temporary shutdown of the rail line over a weekend. In the early phases of

construction, the railroad determined that the only available window for shutdown of the rail line was in October 2000. Since this work needed to precede the landfill construction activities, it was critical the schedule be met. Delay would severely impact the Navy's ability to meet the Federal Facility Agreement commitment for starting construction.

To be in position to construct the outfall section, FWENC had to accelerate mobilization and resequence the construction schedule. The piling was field coated to reduce fabrication time. The pile cap adjacent to the railroad was shored using sheet piling, allowing excavation, placement and concrete cure time to occur prior to the railroad removal effort. Close coordination was performed with the railroad to allow construction of a portable cofferdam along the Thames River bank. All of these efforts paid off allowing the culvert installation to begin on Friday October 13, 2001.

Immediately following removal of the rail tracks by the railroad on Friday evening, excavation commenced. Light plants were on hand for the around-the-clock effort. As excavation approached river elevation, work had to be sequenced around high tide. The permeable railroad embankment rock unfortunately provided a conduit for water to flow into the open excavation at high tide. As the tide dropped below the elevation of the open



Box Culvert Installation

excavation the cofferdam was effective in holding back the river water. By Saturday evening the last culvert sections had been installed and by Sunday morning the site was backfilled and ready for reinstallation of the rails, eighteen hours ahead of schedule.

The remaining culvert installation work through the landfill also presented challenges. To avoid damaging the sheetpile shoring system for the box culvert excavation, pre-trenching was used. Large debris was thus removed from the landfill waste. Dewatering the box culvert excavation required capture of the groundwater given it contained landfill leachate. The dewatering liquids had to be collected in a portable storage tank and treated by

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an on site treatment system consisting of bag filters for particulate removal and charcoal filters for organic removal. The water was then discharged to the local POTW under a discharge permit.

Given that much of the landfill was bedded on soft river sediment, differential settlement was a concern. Therefore, the culvert was designed to be supported by piling. Steel H piles were used nearest the river in friction bearing. Due to the corrosivity of the brackish river water, the piling members were corrosive-resistant coated. The bedrock in this area slopes upward inland from the river. Therefore, the piling further inland were fabricated as 12-inch diameter steel and concrete composite pipe with a 4000 psi concrete core, designed to bear on bedrock. Due to the steep slope of the bedrock, there was a concern about the piling slipping along the rock interface. Therefore, the piling was designed with a drilled socket end that keyed into the rock. During construction the Navy accepted FWENC's proposed value engineering change to substitute a monotube design using 8-inch diameter steel tubes filled with 5000 psi grout and a single # 14, 75 ksi reinforcing bar. Use of the reinforcing steel and high strength grout provided the equivalent strength of the larger diameter designed piling with greatly reduced drilling costs.

The culvert furthest from the river was designed to bear directly on the bedrock. In this area, the rock surface was higher and harder than expected than anticipated, resulting in a much larger quantity of rock excavation and harder removal. Due to the reduced productivity caused by the hard rock and the greatly increased quantity requiring removal, the work plan was modified to remove the rock by blasting. The project stayed on schedule by changing the rock removal method and working later into the winter to complete the culvert installation.

Landfill waste excavated for installation of the box culvert was staged and protected on site until the spring when it was placed under the landfill cap system.

The March 2, 2001 spring remobilization was delayed by four weeks due to several late winter snowstorms. Spring activities included finalizing site grading, preparing subgrade for liner installation, and installing liner drainage layer and surface layers. The schedule was later recovered after the

Navy authorized overtime hours to complete construction. According to the SUBASE "It is understood that seasonal museum visitation concerns and ROD requirements drove the project into the winter months and into potentially long-reaching delays due to inclement weather. Only a combination of luck and skill kept the project on schedule through the winter".

Subgrade layers were designed to promote surface drainage by maintaining a minimum 2% slope across the site. When it became apparent there would be 2,500 cy of excess cut materials from a combination of landscaping design requirements and box culvert installation, FWENC balanced the cut and fill quantities by increasing the cross slope to 3%. The ability to adjust the grade at the lower end of the landfill was limited as the landfill abutted the museum entrance at grade. The redesign subgrade increased the surface slope by raising the grades on the higher southern end of the landfill by up to 5 feet and maintaining the grade in front of the museum, allowing the placement of the additional 2,500 cy of material.

As soon as a large enough area was prepared for liner installation, FWENC's liner crew was mobilized to the site. Liner installation was performed intermittently across the site as areas were made available.

The liner on a landfill cap is typically installed in manageable size pieces and joined together by thermal welding. These thermal welds are a critical element in the membrane layer. On traditional liner installations, a substantial effort is placed in verifying the adequacy of the welded joints. Typically, sections of the welded joint are cut from the liner. The test coupons are placed in a tensiometer where the strength of the weld is measured in tension. This parameter is used to gauge the adequacy of the weld.



Landfill Cap Liner Installation

Working closely with the EPA, a method that had only recently been introduced to the United States was used to verify the thickness of the welds using a portable Ultrasonic Testing (UT) machine.

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Goss Cove Landfill Capped

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Thickness is a more reliable indicator of the serviceability of a weld than the traditional tensile strength measurement. By using a nondestructive testing methodology, the number of liner patches and potential failure points are reduced. The UT



Ultrasonic Testing (UT) Of Cap Liner Weld

test results are available in real time, allowing immediate adjustment to welding controls resulting in fewer nonconforming welds. In addition, by performing the testing on site instead of in a laboratory, the quick turn around on test results minimized the wait time for placing subsequent layers of the cap system over the liner.

While the cap construction was ongoing, the Navy worked with the museum representatives to finalize the landscaping plan. The Navy's landscaping plan goal was to provide a Master Plan for aesthetically pleasing plantings compatible with the landfill cap. Since the plantings could potentially impact the integrity of the cap system, the integrated Landscaping Master Plan was submitted to and approved by the regulators.

Landscaping planning proceeded almost con-

currently with construction requiring close coordination between the Navy and FWENC. To minimize the need for rework, as the landscaping plan was developed, conflicts with the designer's finalized design were addressed in advance. The Landscaping Master Plan outlined the placement of nearly 7,000 trees and plants. The Navy divided the planting efforts into three phases. The first phase was to be funded as part of the cap construction effort. The second and third phases were for future museum-funded improvements.

The landscaping design included a plaza area immediately in front of the museum using a combination of tile pavers, raised landscaping beds, and selective plantings.



Newly Landscaped Plaza Area At Museum Entrance

Construction of the landfill cap required the placement of 148,000 sf of 24 oz. non woven geotextile as the gas management layer, 148,000 sf of 60 mil LLDPE geomembrane, 148,000 SF of triplaner geocomposite drainage layer, 22,000 cy of fill material, 1200 cy of topsoil, 99,000 sf of asphalt, and 3,600 lf of drainage pipe. Landscaping features included 3,600 lf of curbing, 5,000 sf of pavers, 1,200 plants (Phase 1), 1,100 lf of granite block, 40,000 sf of seeding, 1,000 sf of sod.

(Editor's Note: THE END)

In Every Seed There Resides The Promise Of A New Life

In Memory of Our Friend, Diana McPherson Bartlett

By Christine Eisner

Entomologist

In celebration of Diana McPherson Bartlett's life, an oak tree was planted in Celebration Forest, Bear Butte Grove, located in Northern Idaho. In Celebration Forest trees can be planted in memory of people who have passed away. The owners of the forest believe that putting a healthy, young tree in the ground is a symbol of celebration: representing life, hope, growth and continuity. Trees planted in Celebration Forest are protected from deforestation and assigned a grove number. Each tree is cared for throughout the year to allow the greatest chance of success. It is our hope that Diana's tree will grow tall and strong. If you ever visit Sandpoint Idaho and Celebration Forest, please check on Diana's tree in grove number C70-R18. If you want more information on Celebration Forest, the website is www.celebrationforest.com.



FIT TO BE *TIED*

By Curt Frye

Environmental Service Manager

On September 21, 2001, Greg Apraham was photographed actually wearing a tie! Rumor has it the tie was borrowed.

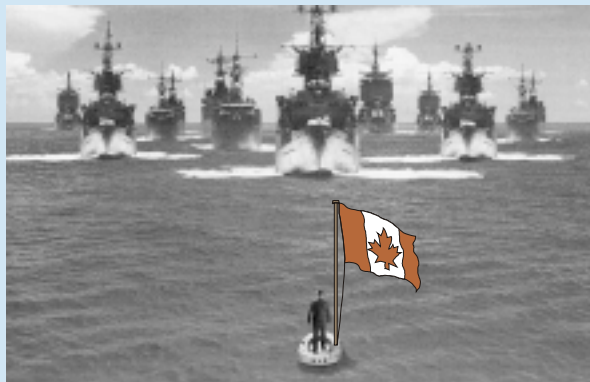
The occasion was the presentation by Maine Governor Angus King of the 2001 Governor's Award for Environmental Excellence (Pollution Prevention Category) to members of NAS Brunswick, ME. The award was given for the Activities superb efforts associated with boiler decentralization and facility consolidation.

Pictured (L to R) are Martha Kirkpatrick, Commissioner of Maine Dept of Environmental Protection; Duncan Morrison, Combined Energies (project contractor); Greg Apraham,



NASB Environmental Manager; Lisa Joy, NASB Air Program Manager; LT A.J. Ballard (ret.), former NASB Public Works Officer; CAPT Keith Koon, NASB Commanding Officer; and Angus King, Governor of Maine.

OH CANADA!



This is *alleged* to be the transcript of an *actual* radio conversation of a US Naval ship with Canadian authorities off the coast of Newfoundland in October, 1995. Radio conversation released by the Chief of Naval Operations 10-10-95. You decide.

Americans: Divert your course 15 degrees to the North to avoid a collision.

Canadians: Recommend you divert YOUR course 15 degrees to the South to avoid collision.

Americans: This is the Captain of a US Navy ship. I say again, divert YOUR course.

Canadians: No. I say again, you divert YOUR course.

Americans: THIS IS THE AIRCRAFT CARRIER USS LINCOLN, THE SECOND LARGEST SHIP IN THE UNITED STATES ATLANTIC FLEET. WE ARE ACCOMPANIED BY THREE DESTROYERS, THREE CRUISERS, AND NUMEROUS SUPPORT VESSELS. I DEMAND THAT YOU CHANGE YOUR COURSE 15 DEGREES NORTH, THAT'S ONE FIVE DEGREES NORTH, OR COUNTER-MEASURES WILL BE UNDERTAKEN TO ENSURE THE SAFETY OF THIS SHIP.

Canadians: This is a lighthouse. Your call.